

# PINGER™ NETWORK IP TESTER USER'S GUIDE

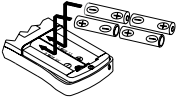


## BOX CONTENTS

- Pinger Network IP Tester
- AC Adapter
- Four AA Alkaline Batteries
- User Guide

## BATTERY

The Pinger operates on four AA alkaline batteries. Remove the battery cover at the back of the unit and insert the batteries with the orientation as shown. Battery polarity is marked inside the battery well for reference.



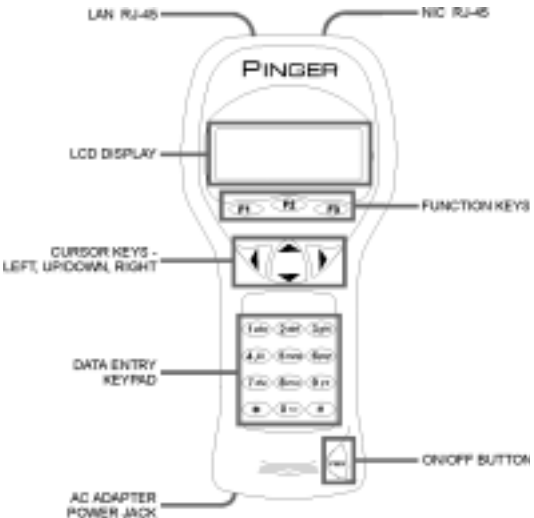
## TECHNICAL OVERVIEW

The Pinger Network IP Tester uses the “PING” function to send a data packet to another IP address on a network or respond to a PING sent to its own IP address. The PING test is used to verify connectivity, measure round trip communications time, check data integrity, determine a MAC address, identify duplicate IP addresses and search for up to eight stored IP addresses. The Pinger provides a DHCP Client emulation mode and a Port Identification function with selectable blink rates to locate which port on a hub or switch that a wall outlet is connected.

## NETWORK COMPATIBILITY

The Pinger is designed for testing an Ethernet network that uses the IP protocol. The unit can communicate directly with a hub, switch, router, NIC or other network device that uses 10baseT or a 10/100Mbps (Fast Ethernet) device set for 10baseT or Auto-negotiation operation. The Pinger will identify when it is connected to a 100baseT only device but it cannot transmit or receive a PING. When a 100baseT connection is identified, locate a different port or device on the network that is configured for 10baseT or Auto-negotiation to run the Pinger tests.

## MECHANICAL FEATURES



## OPERATION

To test a hub or switch, connect a patch cable from the RJ-45 port on the equipment to the RJ-45 jack marked "LAN" on the Pinger. To test a NIC or most routers, connect a patch cable to the RJ-45 jack marked "NIC" on the Pinger.

### LINK SCREEN

Turn on the Pinger by pressing the "PWR" button. The unit scans the RJ-45 connections searching for Link signals.

```
LINK
      Searching
Repeat                Setup
```

If no Link signals are found, a "No Link" message is displayed and a REPEAT function is provided to rerun the search for a Link Partner. When proper Link signals are found, the Pinger displays the Link speed, normal or reversed polarity of the connection and enables the PING, DHCP and PortID function keys. Disconnecting the Pinger will cause the unit to immediately restart the search for Link signals.

```
LINK
      Speed: 10
      Polarity: Normal
Ping    DHCP    PortID
```

Note: the Pinger is not compatible with equipment set for 100baseT only operation. The Pinger displays a "100baseT" message when this type of connection is detected but can not run any of the tests.

### IP PING SCREEN

Pressing the PING function key in the Link Screen presents the IP PING Screen.

```
IP PING
      Name Enter IP
Address _ . . .
Exit   Ping  Setup
```

The Up/Down cursor key is used to select: 1) enter and PING a new IP address 2) PING one of eight preprogrammed IP addresses (see IP List Setup) or 3) sequentially PING all of the one to eight preprogrammed IP addresses.

When "Enter IP" (See Data Entry) or one of the eight preprogrammed IP addresses are selected, pressing the PING function key transmits the PING packet and "Waiting" is displayed until a response is received. When the PINGed IP address is in the same subnet as the Pinger IP address and the PING response is received, the Round Trip Time is displayed and the packet is checked to see if the received data is identical to the transmitted data (Data:Good) or if there has been data corruption (Data:Bad).

```
IP PING
RTTIME: 4ms DATA: GOOD
Address 169.124. 52.121
Exit   Repeat  Info
```

The MAC address of the PINGed IP address is displayed by pressing the INFO function key. When more than one response is received from a

PING, "Dupe IP Error" is displayed indicating a duplicate IP address is present on the network. If no PING response is received within ten seconds, "No Response" is displayed. When the PINGed IP address is in a different subnet than the Pinger IP address, the unit first attempts to locate the default gateway. If the gateway does not respond, the Pinger displays a "No Gateway Found" message indicating either the gateway is not functioning properly or an incorrect gateway IP address was entered. When a gateway is located, a "Gateway Found" message is displayed and the PING test continues as described above. When a PING response is received from another subnet, the MAC address of the Gateway is shown (GW MAC) when the Info key is pressed.

Note: When the IP address of the device being PINGed is in the same subnet/VLAN as the IP address of the Pinger, the Subnet Mask can be "ON" or "OFF" and a Gateway IP address is not required. When the IP address is in a different subnet/VLAN, the Subnet Mask must be "ON" with the mask entered and the IP address of the Gateway must be entered. (See Subnet Mask Setup and Gateway Setup)

### IP LIST SCREEN

When "List" is selected and the PING function key is pressed, each IP address stored in the IP List (see IP List Setup) is PINGed in turn. The same "Waiting" and "No Response" messages are displayed as described above.

```
IP LIST WAITING
Name CASEY2
Address 169.124. 52.121
Exit
```

After completing the PING of the last stored IP address, the IP List Reponse screen is presented.

### IP LIST RESPONSE SCREEN

The IP List Response screen shows the results of the PING to each of the stored IP addresses.

```
IP LIST RESPONSE
Name CASEY2
RTTIME: 4ms DATA: GOOD
Exit Info
```

The Up/Down cursor key is used to scroll through each IP address with Round Trip Time, Data status and MAC address presented for IP addresses that are found or "No Response" for IP addresses that did not respond within ten seconds. Times that are less than one second are shown in milli-seconds (ms).

### IP RESPONDER MODE

The Pinger will respond to a PING request that is sent to the unit's IP address. When the unit is in the LINK Screen showing speed/polarity, a PING to the Pinger IP address presents the PING Received screen.

```
PING RECEIVED
From 169.124.252.131
MAC 00A0C90D218A
Exit
```

The Ping Received screen shows the IP and MAC addresses of the PING source. The data packet in the PING request is limited to no more than 128 bytes or else the request will be discarded by the Pinger.

## DHCP SCREEN

Pressing the DHCP function key in the Link Screen presents the DHCP Screen and begins the DHCP client-server test.

```
DHCP      WAITING

Address   .   .   .

Exit     Ping     Info
```

Note: The MAC Address of the Pinger may have to be added to the Access List of the Default Gateway for the Pinger messages to be accepted - see your System Administrator for Gateway requirements.

The Pinger transmits a "Discover" message to locate a DHCP server. If no DHCP Server responds to the message within ten seconds, the Pinger will retransmit the "Discover" message up to three more times. If no DHCP Server responds after the fourth attempt (about 40 seconds), "No Response" is displayed. When a DHCP Server responds to the message, the Pinger displays "Server Found" the IP Address of the Server and the IP Address assigned to the Pinger.

```
DHCP      SERVER FOUND

Server    192.168.  0.  1
Address   192.168.  0. 36

Exit     Ping     Info
```

Pressing the INFO key displays the Gateway IP Address and the Subnet Mask used with the IP Address assigned by the DHCP Server. Note: If the DHCP Server does not provide the Gateway IP Address, a 0.0.0.0 IP Address is displayed.

Pressing the PING key while in the DHCP Client mode presents the IP PING screen with a "DHCP ACTIVE" message displayed and the IP Address of the Gateway. If Gateway information is not available, the DHCP Server IP Address is shown.

```
IP PING  DHCP ACTIVE

Name Enter IP
Address 192.168.  0. 10

Exit     Ping     Setup
```

Pressing the PING key from the IP Ping Screen transmits a PING that uses the IP Address, Gateway Address and Subnet Mask provided by the DHCP Server instead of the IP Address, Gateway Address and Subnet Mask that were previously entered and stored in the Pinger. The Gateway IP Address is automatically entered as the address to be PINGed (or the DHCP Server address when Gateway information is not available). Alternatively, a new IP Address can be entered or the Up/Down cursor key can be used to select a previously stored address. Pressing the EXIT key returns the Pinger back to the LINK Screen and clears the DHCP Server assigned addresses and mask. Pressing the Setup key also clears the DHCP Server assigned information.

## PORT ID SCREEN

Pressing the PortID function key in the Link Screen presents the Port ID Screen.

```
PORT ID
      Rate: FASTEST
      Type: HUB
Exit                               Setup
```

As soon as this screen appears, the Pinger begins transmitting a pattern of Link signals that will cause the hub, switch or NIC Link LED to blink or stay on continuously. Identifying the specific port a wall outlet/PC is connected to can aid in diagnosing the cause of failed PING tests. Hubs and switches from various manufacturers have different specifications for the time it takes for Link signals to turn the Link LED on and off. The Pinger has four different blink rates and a continuous mode that can be selected by pressing the Up/Down cursor key. An initial test directly at the hub or switch will determine the best blink rate setting before conducting a Port ID test at a wall outlet.

## SETUP

Pressing the SETUP key in any screen presents the Setup Screen.

```
SETUP
      Configure: IP LIST
Exit                               Select
```

The Up/Down cursor key is used to display: 1) IP List Setup 2) Pinger IP Setup 3) Subnet Mask Setup 4) Gateway Setup 5) Power Down Time Setup or 6) Pinger MAC Screen. Press the SELECT function key to enter the displayed setup screen. The Pinger MAC can not be changed.

## IP LIST SETUP SCREEN

The IP List Setup screen is used to enter from one to eight names and IP addresses. The Pinger can then PING the entries individually or PING all entries sequentially.

```
IP LIST SETUP
      Name   NAME 1
      Address "  "  "
Exit   Save   Setup
```

**Data Entry** - Use the Up/Down cursor key to select one of the eight storage locations and press the right arrow key to display the cursor and begin entering a new name or editing an existing one. Use the data entry keypad to input the number or letter (each time the key is pressed the next letter or number on the key is displayed). Pressing the right cursor key advances to the next character. Pressing the left cursor key selects the previous character. Names can be a maximum of ten characters long. Pressing the right cursor key an eleventh time advances the cursor to the IP Address which is divided into four fields of three characters. Only numbers can be input in the fields and the maximum valid number for any field is 255. Single digits can be entered in any of the three character locations and will be right hand justified when the cursor is moved to the next field. Two digit numbers can be entered in the left two or right two character locations. If an invalid number is entered, the cursor will not advance to the next field. After entering or editing the name and IP address, press the SAVE function key to store the information in non-volatile memory.

The information is retained even if the unit is turned off or the batteries are removed. To remove an entry from the list, press the right cursor key to select the entry and then press the star key. A "Delete Entry" message is displayed and pressing the SAVE function key clears the selected name and IP Address.

### PINGER IP SETUP SCREEN

The IP address for the Pinger is input from this screen. The Pinger comes programmed with a default address of 192.168.42.1. The Pinger IP address is changed as described in the Data Entry section.

```
PINGER IP SETUP
      Name  Pinger
      Address  "  "  "
      Exit  Save  Setup
```

### POWER DOWN SETUP SCREEN

The Pinger will automatically turn off after the time selected in the Power Down Setup screen.

```
POWER DOWN
      Time:  5 MIN.

      Exit  Save  Setup
```

Settings available are five minutes, fifteen minutes, thirty minutes and on (must be turned off manually). Press the SAVE function key to store the selected setting.

### SUBNET MASK SETUP SCREEN

To Ping an IP address in a subnet different than the subnet of the Pinger, requires that the Subnet Mask be entered and "ON" and the appropriate Gateway IP address has been entered. Mask "ON" and "OFF" is selected with the Up/Down Cursor key. The Mask is entered as described in the Data Entry section. A zero in the first field is an invalid mask entry and the Pinger defaults to 255 when the mask is saved.

```
SUBNET SETUP
      Mask: ON
      SNMask 255.255.  0.  0
      Exit  Save  Setup
```

NOTE: Subnet Mask and Default Gateway IP address may be found by going to a computer on the subnet where the Pinger will be used, open the Windows Control Panel, open the network icon, open the LAN Icon, select TCP/IP Protocol and then select properties.

### GATEWAY SETUP SCREEN

The IP address for the default Gateway (typically a router or a server) is input from this screen.

```
GATEWAY SETUP
      Address 192.166. 15.  0

      Exit  Save  Setup
```

### Pinger MAC SCREEN

The Pinger MAC address is displayed in this screen. The MAC for each Pinger is unique and can not be changed. See Note in DHCP.

## POWER

**Duration** - The Pinger will typically provide 10-12 hours of operation from a set of four AA alkaline batteries. An AC adapter is also provided which will power the unit but does not recharge the batteries.

**Auto Power Down** - The Pinger will automatically turn off after the time selected in the Power Down Setup screen or will run continuously until manually turned off when "ON" is selected for Power Down.

**Low Battery** - When the batteries are below the level required for the Pinger to operate properly, a "LO BATT" message appears in the upper right hand corner of the display.

## APPLICATIONS

**Installation** - Verify physical layer connectivity between any two points on a network by sending an actual data packet to the other IP address and receiving the packet back. Use two units to PING each other to test network end-to-end operation prior to installing work stations, servers or other network devices.

**Trouble Calls** - Reduce troubleshooting time by ensuring the Link is active, wire polarity is correct and data is not being corrupted.

**Moves, Adds and Changes** - Port ID feature transmits Link activation signals to identify the hub/switch port that is connected to a wall outlet. Four different blink rates and a continuous mode provide compatibility with a wide range of network equipment.

**Network Management** - Measure Round Trip Time between different points on the network to determine if high traffic levels are causing poor network performance. Typically Round Trip Times should be less than one second. Identify the MAC address of a network device.

**Remote Office Support** - Users in remote locations can connect the Pinger at a problem point on a network and the the support desk can PING the unit over the Internet. This test shows if there is correct network operation to the point where the Pinger has been installed.

**Support Desk** - Resolve Internet log-on problems by verifying the DHCP server is available and the assigned IP address is valid.

## WARRANTY

Psiber Data Systems Inc. warrants that the product shall be free from defects in parts or workmanship for a period of 12 months from the date of purchase if used in accordance with Psiber Data Systems Inc. operating specifications.

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**Return of Equipment** - To return a product to Psiber Data Systems Inc., first obtain a Return Authorization number from our Customer Service by calling 619-287-9970. The RA# must be clearly marked on the shipping label, or the package will not be accepted by Psiber Data Systems Inc. See sample label below.

To: **Psiber Data Sytems Inc.**  
7075-K Mission Gorge Road  
San Diego, CA 92120  
RA# XXXXXXXX

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***messkom***

Messkom Vertriebs GmbH  
Kirchstr. 13  
D-85416 Langenbach/Oberhum.  
Telefon: 08761/70414  
Telefax: 08761/70416  
Bankverbindung:  
Raiffeisenbank Moosburg  
BLZ: 701 696 14  
Kontonr.: 1846 655  
Amtsger. München HRB109371  
Ust.IdNr.: 172484582  
Geschäftsführer: Walther Gold

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